

# NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

## FACT SHEET

(pursuant to Nevada Administrative Code 445A.236)

**Permittee Name:**

Dyno Nobel Inc.  
P. O. Box 1628  
Battle Mountain, NV 89820

**Permit Number:**

NEV90031

**Location:**

Dyno Nobel Inc. – Battle Mountain Plant  
Six miles north and two miles east of Battle Mountain  
Battle Mountain, Lander County, Nevada

Latitude: 40° 41' 22"

Longitude: 116° 52' 3"

Township 33N, Range 45E, Section 35 MDB&M

**Flow:**

0.049 Million Gallons per Day (MGD) 30-Day Average

**Bureau of Corrective Actions Sites:** The subject facility is not within one (1) mile of any Nevada Division of Environmental Protection Bureau of Corrective Actions remediation site.

**Drinking Water and Wellhead Protection Areas:** The facility is not within a Drinking Water Protection Area (DWPA) around any public water supply well. The facility is outside the Wellhead Protection Area (WHPA) established for the Battle Mountain area.

**General:** The Dyno Nobel Inc. Battle Mountain Plant, formerly owned and operated by Coastal Chemical, is located six miles north and two miles east of Battle Mountain in western Lander County, Nevada. The facility originally manufactured nitric acid ( $\text{HNO}_3$ ) and ammonium nitrate ( $\text{NH}_4\text{NO}_3$ ). Ammonium nitrate is used as a blasting agent component in the mining industry. At the Dyno Nobel facility, ammonium nitrate was produced by the neutralization of nitric acid with ammonia. The water in the ammonium nitrate solution was then evaporated, and the solution was concentrated to approximately 99% ammonium nitrate. The material was then formed into granules or “prills”, which are subsequently dried and coated with a preservative before storage and shipment. Production at the facility was suspended in February 2011, and the facility was in non-production status at the time of the 2011 permit renewal. However, the facility functions as a transfer station, where ammonium nitrate is transferred from rail cars to delivery trucks.

While under the direction of Coastal Chemical, the site was heavily impacted by spills and leakage from the various on-site holding ponds. Extraction of impacted shallow groundwater is ongoing.

### **Description of Discharge**

The facility water is supplied by an on-site well. Water is treated and used for potable water supply, and was previously used for boiler feed water and process cooling. Various water treatment reject and process streams are contained on site in the evaporation pond discussed below. Previously, these include the following: cooling tower Reverse Osmosis (RO) reject water; boiler water softener brine and rinse water, boiler blow-down water; nitric acid plant sump fluid; plant site stormwater collection sumps (3); and plant site wash-down water. In the current non-production situation, fluids directed to the pond include reject streams from the potable water treatment system, water extracted for groundwater remediation purposes, and stormwater.

The above listed fluids are directed to a triple-lined four (4)-acre evaporation pond, with an approximate storage capacity of 4.0 million gallons, as Outfall 001. The permit limits the 30-day average flow rate to 0.049 MGD. The evaporation pond is constructed with 2 40 mil high density polyethylene (HDPE) liners, overlain by a 60 mil HDPE liner. Originally double lined, the pond developed leaks and required the third liner. A layer of DN1 type "Geonet" drainage net separates each liner layer, and serves to conduct any fluid leaking through the upper or middle HDPE liner to a fluid collection sump. Two leak detection monitor ports (LDMP) are located on the north and south sides of the evaporation pond. The north LDMP monitors any fluid present between the upper two liner layers; the south LDMP monitors fluid present between the lower two liner layers. Fluid collected within the leak detection system is pumped back into the evaporation pond.

The fluid in the evaporation pond is, as expected, high in nitrate. The effect of the evaporation action concentrates the solution to the extent that the fluid can be used as a salable liquid fertilizer. Sale of the fertilizer solution is monitored as Outfall 002

In 2001, a leak-detected HDPE evaporation apron was added to the evaporation pond to aid in fluid evaporation. The fluid is pumped onto the apron, which is heated by action of the sun, and remaining fluid reports back into the evaporation pond. Fluid pumped to the evaporation apron is monitored as Outfall 003. Two leak detection sumps are associated with the evaporation apron.

### **Receiving Water Characteristics**

A system of nine (9) monitor wells is associated with this facility. Well logs indicate the presence of two distinct hydrogeologic horizons below the facility: The upper unconfined aquifer is encountered at approximately 30 feet below ground surface (bgs), and is approximately 30 feet thick. The upper aquifer is underlain by a clay layer at 60 feet bgs, which extends to approximately 90 feet bgs. The lower aquifer is confined by the clay layer.

The original four monitor wells were MW1, MW2, MW3, and MW4, all approximately downgradient of the evaporation pond and plant site. MW1 is completed in the lower confined aquifer; MW2, MW3, and MW4 are completed in the upper aquifer. It has been observed that MW2, MW3, AND MW4 have all been impacted by pond leaks and/or rail car spills. Subsequent additions to the monitor well system include NMW3 (upgradient of the evaporation pond), MW5, MW6 (downgradient of the plant site), MW7 and MW8

(downgradient of the evaporation pond). MW3 is now being used as an extraction well for groundwater remediation, with extracted groundwater being discharged to the evaporation pond.

The lower aquifer is of generally good quality, as evidence by monitoring results for MW1. Monitoring results for monitor well NMW3, upgradient of the evaporation pond and production facility, give information on background water quality of the upper aquifer. Discharge Monitoring Reports (DMRs), submitted during the period from March April 2006 through March 2011, indicate significant improvement in water quality in impacted areas. A summary of DMR data is included below:

Well Number	Total Nitrogen (mg/l)			Total Dissolved Solids (mg/l)			Chloride (mg/l)		
	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min
MW1	<1.1	2.2	<1.1	369.5	420	340	20.2	26	10
MW2	1069.4	2620	410	7690	18000	3400	475.5	610	350
MW3	11670.9	24000	5200	25300	38000	15000	510.5	1700	290
NMW3	1.2	2.9	<1.1	856.5	2500	600	44.2	55	24
MW4	6630.1	10502	4000	20750.0	32000	12000	225.45	420	99
MW5	2.9	7.5	<1.1	841	1000	510	49.4	63	33
MW6	3.1	7.3	<1.4	838	940	760	48.8	64	29
MW7	3.9	10	<1.1	830	1200	730	50.5	66	28
MW8	14.2	63	7.1	964.5	1300	840	56.4	66	30

### **Proposed Effluent Limitations and Monitoring Requirements**

#### **Discharge Monitoring:**

Outfalls 001, 002, and 003 shall be limited and monitored according to the following table:

### Outfall 001

Parameter	Discharge Limitation		Monitoring Requirements	
	30 Day Average	Daily Maximum	Measurement Frequency	Sample Type
Flow to Pond (MGD)	0.049	Monitor & Report	Continuous	Flow Meter
pH (Standard Units)	Monitor & Report		Quarterly	Discrete
Total Nitrogen (mg/l)	Monitor & Report		Quarterly	Discrete
Total Kjeldahl Nitrogen (mg/l)	Monitor & Report		Quarterly	Discrete
Nitrate as N (mg/l)	Monitor & Report		Quarterly	Discrete
Total Dissolved Solids (mg/l)	Monitor & Report		Quarterly	Discrete
North Leak Detection Port Fluid Accumulation (gallons per day)	Monitor & Report	10	Weekly	Calculation
South Leak Detection Port Fluid Accumulation (gallons per day)	Monitor & Report	10	Weekly	Calculation

### Outfall 002

Parameter	Discharge Limitation		Monitoring Requirements	
	30 Day Average	Daily Maximum	Measurement Frequency	Sample Type
550 Solution (weight & date shipped, and destination)	Monitor & Report	Monitor & Report	Each Shipment	Discrete
pH (Standard Units)	Monitor & Report	Monitor & Report	Quarterly	Discrete
Total Nitrogen (mg/l)	Monitor & Report	Monitor & Report	Quarterly	Discrete

### Outfall 003

Parameter	Discharge Limitation		Monitoring Requirements	
	30 Day Average	Daily Maximum	Measurement Frequency	Sample Type
East Apron Leak Detection Port Fluid Accumulation (gallons per day)	Monitor & Report	10	Weekly	Calculation
West Apron Leak Detection Port Fluid Accumulation (gallons per day)	Monitor & Report	10	Weekly	Calculation

### Groundwater Monitoring

Groundwater monitoring wells MW1, MW2, MW3, NMW3, MW4, MW5, MW6, MW7, and MW8 and the Supply Well shall be limited and monitored according to the following:

PARAMETERS	GROUNDWATER LIMITATIONS	MONITORING REQUIREMENTS		
		Sample Location	Measurement Frequency	Sample Type
Depth to Groundwater (feet)	Monitor & Report	All Wells	Quarterly	Discrete
Groundwater Elevation (feet AMSL)	Monitor & Report	All Wells	Quarterly	Calculated
Total Nitrogen as N (mg/l)	10	MW1, NMW3, MW5, MW6, MW7 Supply Well	Quarterly	Discrete
	Monitor & Report	MW2, MW3, MW4, MW8		
Total Dissolved Solids (mg/l)	Monitor & Report	All Wells	Quarterly	Discrete
Chlorides (mg/l)	Monitor & Report	All Wells	Quarterly	Discrete

### Schedule of Compliance

- a. The Permittee shall implement and comply with the provisions of the schedule of compliance after approval by the Administrator, including in said implementation and compliance, any additions or modifications that the Administrator may make

in approving the schedule of compliance.

- b. By **MMM DD, 2011**, the Permittee shall submit any updates or revisions to the Operations and Maintenance Manual. The revisions shall include a section on Best Management Practices (BMPs) for housekeeping.

#### **Procedure for Public Comment**

Notice of the Divisions intent to renew the subject permit, subject to the conditions contained within the permit, is being sent to the **Battle Mountain Bugle** and the **Reno Gazette Journal** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit may do so in writing for a period of 30 days following the date of the public notice. All comments regarding this permit must be received or postmarked by **5:00 pm on September 2, 2011**. The comment period may be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator or any interested agency, person or group of persons.

The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

#### **Proposed Determination**

The Division has made the tentative determination to renew the proposed permit for a period of five (5) years, in accordance with effluent limitations, monitoring requirements, and other conditions set forth in the renewed permit.

#### **Rationale for Permit Requirements**

No discharge of fluids or wastes is allowed at the facility. Groundwater monitoring is required to confirm that remediation actions continue to be effective in reducing contamination at the site and that no additional impact due to site activities occurs.

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Bureau of Water Pollution Control  
Nevada Division of Environmental Protection  
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Final: